WHAT IS CLAIMED IS:

1. A MIM capacitor comprising:

first and second electrodes formed from a metal material;

a capacitor insulating film;

a first diffusion prevention film interposed between said capacitor insulating film and said first electrode to prevent diffusion of atoms constituting the metal material; and

a second diffusion prevention film interposed between said capacitor insulating film and said second electrode to prevent diffusion of atoms constituting the metal material.

2. The MIM capacitor according to claim 1,

wherein a shape of said first and second electrodes is one of shapes including matrix, drainboard, and comb shapes other than a rectangular shape.

3. The MIM capacitor according to claim 1,

wherein said first electrode is filled in a trench in a semiconductor substrate and has a flat surface, and said second electrode is filled in a trench in an insulating film on the semiconductor substrate and has a flat surface.

4. The MIM capacitor according to claim 1,

wherein said first and second diffusion prevention films include metal nitride films.

5. The MIM capacitor according to claim 1, wherein said first and second diffusion prevention films consist of one member selected from the group consisting of Ti, TiN, TiSiN, Ta, TaN, TaC, TaSiN, $TaCeO_2$, $Ir_{46}Ta_{54}$, W, WN, W_2N, $W_{64}B_{20}N_{16}$, $W_{23}B_{49}N_{28}$, and $W_{47}Si_9N_{44}$.

6. The MIM capacitor according to claim 1, wherein the metal material includes Cu.

7. The MIM capacitor according to claim 1, further comprising an insulating layer having an opening on said first electrode;

wherein said first diffusion prevention film is filled in the opening of said insulating layer, and said capacitor insulating film and said second diffusion prevention film are formed on said first diffusion prevention film.

8. The MIM capacitor according to claim 7, wherein ends of said capacitor insulating film and said second diffusion prevention film overlap said insulating layer.

9. The MIM capacitor according to claim 8, further comprising a silicon nitride film formed on said second diffusion prevention film.

10. The MIM capacitor according to claim 1, wherein said first diffusion prevention film is formed on said first electrode, said capacitor insulating film is formed on said first diffusion

prevention film, said second diffusion prevention film is formed on said capacitor insulating film, and said first and second diffusion prevention films and said capacitor insulating film are covered by a silicon nitride film.

11. The MIM capacitor according to claim 1, further comprising an insulating layer having an opening on said first electrode;

wherein said first and second diffusion prevention films and said capacitor insulating film are formed in the opening of said insulating layer.

12. The MIM capacitor according to claim 11, wherein ends of said first and second diffusion prevention films and said capacitor insulating film overlap said insulating layer.

13. The MIM capacitor according to claim 12, further comprising a silicon nitride film formed on said second diffusion prevention film.

14. The MIM capacitor according to claim 1, further comprising an insulating layer having an opening on said first electrode;

wherein said first and second diffusion prevention films and said capacitor insulating film are formed in the opening of said insulating layer, and are separated from said insulating layer.

15. The MIM capacitor according to claim 14, further comprising a silicon nitride film formed

on said second diffusion prevention film.

16. The MIM capacitor according to claim 1, further comprising a resistance element formed from the same material as a material forming at least either one of said first and second diffusion prevention films.

17. The MIM capacitor according to claim 16, wherein said resistance element is formed in a CMOS logic area.

18. The MIM capacitor according to claim 1, wherein said first electrode is filled in a trench in a first insulating layer above a semiconductor substrate, said second electrode is filled in a trench in a second insulating layer above the first insulating layer, and said first and second insulating layers have flat surfaces.

19. The MIM capacitor according to claim 18, further comprising a MOS transistor formed immediately below said first electrode.

20. The MIM capacitor according to claim 19, wherein a frequency of a signal supplied to said first and second electrodes and a frequency of a signal supplied to said MOS transistor are different less than 50 times.

21. The MIM capacitor according to claim 19, further comprising a shield line which is formed between said first electrode and said MOS transistor,

and set to a predetermined potential.

22. The MIM capacitor according to claim 21, wherein the predetermined potential includes a ground potential.

23. The MIM capacitor according to claim 21, wherein a frequency of a signal supplied to said first and second electrodes and a frequency of a signal supplied to said MOS transistor are different not less than 50 times.

24. A MIM capacitor comprising:

first and second electrodes formed from a metal material; and

a capacitor insulating film which is interposed between said first and second electrodes and has a function of preventing diffusion of the metal material.

25. The MIM capacitor according to claim 24, wherein said second electrode is filled in a trench formed in an interlevel insulating film, and said capacitor insulating film has an etching selectivity with respect to the interlevel insulating film.

26. The MIM capacitor according to claim 24, wherein said first electrode is filled in a trench in a semiconductor substrate and has a flat surface, and said second electrode is filled in a trench in an interlevel insulating film and has a flat surface.

27. The MIM capacitor according to claim 24,

wherein the metal material includes Cu.

28. A manufacturing method of a MIM capacitor comprising the steps of:

forming a first electrode from a metal material by a damascene process;

forming on the first electrode a first insulating film having a function of preventing diffusion of the metal material;

removing part of the first insulating film to use the part as a capacitor area;

forming in the capacitor area a first diffusion prevention film having a function of preventing diffusion of the metal material;

forming on the first diffusion prevention film a capacitor insulating film, a second diffusion prevention film having a function of preventing diffusion of the metal material, and a second insulating film having the same function as the first insulating film;

forming an interlevel insulating film on the first and second insulating films;

forming using the damascene process trenches reaching the first electrode and the second diffusion prevention film in the interlevel insulating film and the first and second insulating films; and

filling the metal material in the trenches to form a wiring line connected to the first electrode and a

second electrode connected to the second diffusion prevention film.

29. The method according to claim 28,

wherein the first diffusion prevention film is formed by sputtering a metal nitride film and then polishing the metal nitride film by CMP, and the capacitor insulating film, the second diffusion prevention film, and the second insulating film are successively processed by PEP and RIE.

30. The method according to claim 28,

wherein the first diffusion prevention film, the capacitor insulating film, the second diffusion prevention film, and the second insulating film are successively processed by PEP and RIE, and ends of the first diffusion prevention film, the capacitor insulating film, the second diffusion prevention film, and the second insulating film overlap the first insulating film

31. The method according to claim 28,

wherein the first diffusion prevention film, the capacitor insulating film, the second diffusion prevention film, and the second insulating film are successively processed by PEP and RIE, and ends of the first diffusion prevention film, the capacitor insulating film, the second diffusion prevention film, and the second insulating film fall within the capacitor area.

32. A manufacturing method of a MIM capacitor comprising the steps of:

forming a first electrode from a metal material by a damascene process;

forming on the first electrode in a capacitor area a first diffusion prevention film having a function of preventing diffusion of the metal material, a capacitor insulating film, and a second diffusion prevention film having a function of preventing diffusion of the metal material;

forming a diffusion prevention insulating film having a function of preventing diffusion of the metal material on the second diffusion prevention film and the first electrode;

forming an interlevel insulating film on the diffusion prevention insulating film;

forming using the damascene process trenches reaching the first electrode and the second diffusion prevention film in the interlevel insulating film and the diffusion prevention insulating film; and

filling the metal material in the trenches to form a wiring line connected to the first electrode and a second electrode connected to the second diffusion prevention film.